



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,260	10/07/2002	Richard W. Duce	DP-301244	8074
22851	7590	11/07/2005	EXAMINER	
DELPHI TECHNOLOGIES, INC.			CYGAN, MICHAEL T	
M/C 480-410-202			ART UNIT	
PO BOX 5052			PAPER NUMBER	
TROY, MI 48007			2855	

DATE MAILED: 11/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/089,260	Applicant(s) DUCE ET AL.	
	Examiner Michael Cygan	Art Unit 2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 and 23-32 is/are pending in the application.
- 4a) Of the above claim(s) 1-12 and 23-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-20, 31 and 32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 October 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/2/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Newly submitted or amended claims 1-12 and 23-30 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-12, drawn to a gas sensor wherein the weight of a terminal is supported by an insulator, classified in class 73, subclass 23.2.
- II. Claims 13-20, 31, and 32, drawn to a gas sensor having a one-piece seal, classified in class 73, subclass 23.31.
- III. Claims 22, 23, and 25-29, drawn to a gas sensor having a terminal portion in spring-like engagement with sensor element contacts, classified in class 73, subclass 31.05.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because I does not require a one-piece seal. The subcombination has separate utility such as a sealed sensor not requiring a weight-bearing insulator member.

Inventions I and III are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because I does not require a terminal in spring-like engagement with the sensor element. The subcombination has separate utility such as sensor not requiring a weight-bearing insulator member. Claim 25 links inventions I and III.

Inventions II and III are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because II does not require a terminal portion in spring-like engagement with contacts on the sensor element. The subcombination has separate utility such as a non-sealed sensor.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

2. Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 1-12 and 23-30 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 13, 16, and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by McClahanan (US 5,329,806). McClahanan discloses the claimed invention, a gas sensor comprising sensing element [42] having a lower portion disposed within a subassembly and an upper portion disposed within a wiring harness (Figure 3); a shell (Figures 2,6; [34,92]); a lower shield [36]; a terminal support [64] comprising a channel extending therethrough and the channel comprising an indentation; a first portion of a terminal [56]

disposed within said indentation of said terminal support and in electrical communication with the sensing element; an alumina ceramic insulator ([44]; column 3 lines 2-15; column 4 lines 19-21) disposed within upper shield and around the upper portion of the sensor element and having a passage for receiving a second portion of the terminal; and

a seal [38] which may be comprised of rubber (column 2, lines 66-67 and column 3 lines 18-20 and 62-63), wherein an upper shield edge [68] is disposed between a portion of a flange of the seal and a part abutting the body of the seal (Figure 2). The seal is made of one piece, as can be seen by the shading of part 38; the seal does not include the terminal support [64] (as applicant's one-piece seal [40] does not include terminal support [60]).

The weight of the terminal [56] and terminal support [64] is supported by the insulator [44,46] (see Figures 3 and 7) in exactly the same way applicants' terminal [62,63] and terminal support [60] is supported by an insulator [90] (Figure 2; specification page 8 first paragraph).

The method for producing the abovedescribed sensor is shown in Figure 2, where the parts are disposed as claimed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 13, 16, 17, 19, 20, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over McClahanan (US 5,329,806) in view of Reidmeyer (US 6,315,880 B1).

McClahanan discloses the claimed invention except for the seal being a "one-piece" seal (assuming that the seal [64] of McClahanan would not correspond to a "one-piece" seal). Reidmeyer teaches a gas sensor comprising a sensing element 3 having a lower portion disposed within a subassembly and an upper portion disposed within a wiring harness (Figure 1), a one-piece seal (grommet 23) which holds an edge of the upper shield in a continuous and concentric manner between flange and body of the seal, lower shell, upper insulator, lower shield having a plurality of apertures; see Figures 1 and 2, and column 3 line 30 through column 4 line 48. Note that the flange of Reidmeyer meets the claimed language, extending along the upper shield in a direction which if followed, leads towards the subassembly, which is clearly shown in Figure 1 of Reidmeyer. It would have been obvious to use a one-piece seal as taught by Reidmeyer in the invention taught by

McClahanan to form the seal, since the use of fewer parts is notorious in the art to reduce complexity and save time and money in device fabrication.

With respect to claims 19 and 20, McClanahan discloses the claimed invention except for the terminal support comprising alumina ceramic.

However, the terminal support [64] and insulator [44] appear to be made of the same material as that of the lower terminal support (alumina ceramic; column 3 lines 55-58). In the alternative, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use alumina ceramic as the sealing material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use (see *In re Leshin*, 125 USPQ 416), and since the use of alumina ceramic is disclosed in McClanahan as being an appropriate sealing material for such a use, and since alumina ceramic is known in the art for providing an inexpensive, easily workable sealing component.

With respect to claim 31, McClanahan discloses that the weight of the terminal [56] and terminal support [64] is supported by the insulator [44,46] (see Figures 3 and 7) in exactly the same way applicants' terminal [62,63] and terminal support [60] is supported by an insulator [90] (Figure 2; specification page 8 first paragraph).

5. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over McClahanan (US 5,329,806) in view of Reidmeyer (US 6,315,880 B1) as set forth in the rejection of claim 16, further in view of Kuisell (US 5,817,920).
The claimed invention is considered to be taught except for the ceramic being made from a fiber. Kuisell teaches the use of ceramic fibers to form an insulator for a gas sensor to be placed between sensor and outer shield/shell; see Figure 1 and column 4 lines 46-56. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use ceramic in fiber form as taught by Kuisell in the invention taught by McClahanan to form the insulator, since Kuisell teaches that such a composition is a high temperature durable material, and thereby satisfactory for exhaust gas sensors which experience high temperatures and physical abuse.
6. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over McClahanan (US 5,329,806) in view of Reidmeyer (US 6,315,880 B1) as set forth in the rejection of claim 13, further in view of Watanabe (US 5,874,664). McClahanan teaches the claimed invention except for the use of a talc seal between insulator and shield. Watanabe teaches the use of a talc seal [24] (Figure 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a talc seal between insulator and shield as taught by Watanabe in the invention taught by

McClahanan to form the seal, since Watanabe teaches that such a configuration results in a “fluid tight connection” of the sensor element to the housing; see column 11 lines 58-61. With respect to claim 16, McClahanan teaches the use of a second insulator [48] between the first insulator [44] and lower shield [36].

Discussion

7. With respect to the consideration of McClahanan, anticipation and obviousness rejections have been made from McClahanan.
8. Applicant relies upon the BPAI decision to overcome the rejection based upon McClahanan under 102. However, the BPAI merely found that an element claimed as “one-piece” as set forth in the applicant’s specification would not be anticipated by an element formed in two pieces and joined together. This is not the rejection made here. The above rejection specifically assigns part 38, which is a single element, to the “one-piece” seal as claimed; therefore the BPAI grounds do not apply. Applicant did not present a persuasive response under 37 CFR 1.111.
9. Note that the flange of Riedmeyer meets the claimed language, extending along the upper shield in a direction which if followed, leads towards the subassembly, which is clearly shown in Figure 1 of Riedmeyer.

10. With respect to the rejection under 103, applicant's arguments amount to a blanket statement that no modification would be obvious when part of a structure would be changed thereby. This is not the standard for obviousness determination. The motivation required for combination of a teaching with a prior art reference to meet claimed limitations is properly set forth in the rejection; such features as replacing a two-piece seal with a one-piece seal, or the use of a different material for a terminal support, would not require a redesign. As there is a suggestion of advantages to be gained by the combination (as set forth in the above rejections), the rejections stand.

11. With respect to applicant's one-piece seal having a flange structure potentially meeting a "long-felt need" in the art, an argument could be made that forming the seal/flange of McClanahan in a unitary piece would not have been obvious (in view of *Howard v. Detroit Stove Works*, 150 US 164 (1893)), since the seal provides "unexpected results" over one-piece seals in the art, which do not have flanges. However, unitary seal/flange seals are known in the art, as shown by Fray (US 4,217,179, Figure 1 seal/flange 6) and by Reidmeyer (US 6,315,880 B1, Figure 1, grommet 23). Since such unitary, one-piece structure is known in the art for sensor seals, no "long-felt need" or "unexpected result" exists. Therefore, the finding of obviousness stands.

Conclusion

Applicant's amendment necessitated the new grounds of amendment and the withdrawal of claims presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

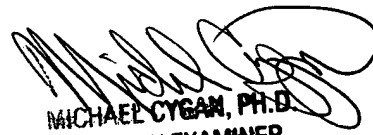
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cygan whose telephone number is (571) 272-2175. The examiner can normally be reached on 8:30-6 M-Th, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2855

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


MICHAEL CYGAN, PH.D.
PRIMARY EXAMINER